Thomas L. Delworth
Tom.Delworth@noaa.gov

EDUCATION

1994	**Ph.D. Atmospheric Science, University of Wisconsin** Dissertation: Soil Wetness and Climate Variability	**Madison, WI**
1983	**M.S. Meteorology, University of Wisconsin**	**Madison, WI**
1979	**B.A. Integrated Science, Northwestern University**	**Evanston, IL**

EMPLOYMENT

Geophysical Fluid Dynamics Laboratory/NOAA **Princeton, NJ**

2001-present	Group Leader, Climate Dynamics and Prediction Group (25 researchers)
1984- 2001	Research Meteorologist, Climate Dynamics Group

RESEARCH INTERESTS

- Climate variability and change on decadal to centennial time scales, with emphasis on
  - the role of the oceans in climate
  - changes in continental hydrology, including extreme events
  - large-scale modes of climate variability, with emphasis on their mechanisms and potential changes
- The use of global coupled ocean-atmosphere models for the study of climate variability and change
- Interactions between forced climate change and internal variability

HONORS & AWARDS

2005	**Silver Medal, Department of Commerce**
1996, 2003	**Outstanding Scientific Paper Award, NOAA**
1980-1983	**National Science Foundation, Graduate Fellowship**
1979	**Phi Beta Kappa Honorary Society**

ADDITIONAL ACTIVITIES

2005-present	**U.S. CLIVAR Prediction, Predictability, and Application Interface Panel**
2004-2005	**U.S. CLIVAR Scientific Steering Committee**
2003-2004	**Co-Leader, GFDL Coupled Model Development Team**
2001-2004	**NSF Arctic System Science Program - OAII, Scientific Steering Committee**
2000-present	**Joint Scientific Council/CLIVAR Working Group on Coupled Modeling**
2000-2003	**SEARCH Scientific Steering Committee (Interagency Arctic Program)**
1999-2003	**International CLIVAR Atlantic Implementation Panel**
1995-2005	**NSF Climate System Laboratory Computing Allocation Panel**
1995, 2001	**Intergovernmental Panel on Climate Change,** Contributing Author
1995-1997	**NOAA's Atlantic Climate Change Program,** Scientific Working Group
1995-1996	**Atlantic Climate and Circulation Experiment,** Scientific Planning Committee

PAPERS SUBMITTED OR IN PRESS

1. Zhang, R., and T.L. Delworth, Impact of Atlantic Multidecadal Oscillations on India/Sahel rainfall and Atlantic Hurricanes. Submitted to *Geophysical Research Letters.*

2. Stott, P.A., J.F.B. Mitchell, J. M. Gregory, B.D. Santer, G.A. Meehl, and T.L. Delworth, Observational constraints on past attributable warming and predictions of future global warming, Accepted, *Journal of Climate*.

3. Hurrell, J.W., M. Visbeck, A. Busalacchi, R.A. Clarke, T.L. Delworth, R.R. Dickson, W.E. Johns, K.P. koltermann, Y. Kushnir, D. Marshall, C. Mauritzen, M.S. McCartney, A. Piola, C. Reason, G. Reverdin, F. Schott, R. Sutton, I. Wainer, and D. Wright, Atlantic climate variability and predictability: A CLIVAR perspective. Submitted to *Journal of Climate*, January, 2005.

RECENT PUBLICATIONS

4. Knutson, T.R., T.L. Delworth, K.W. Dixon, I.M. Held, J. Lu, V. Ramaswamy, D. Schwarzkopf, G. Stenchikov, and R.J. Stouffer, 2006: Assessment of Twentieth-Century regional surface temperature trends using the GFDL CM2 coupled models. Journal of Climate, Vol 19, 1624-1651.

5. Delworth, T.L., and K.W. Dixon, 2006: Have anthropogenic aerosols delayed a greenhouse gas-induced weakening of the North Atlantic thermohaline circulation? *Geophys. Res. Lett*, 33,L02606,doi:10.1029/2005GL024980

6. Delworth, T.L., et al., 2006: GFDL's CM2 global coupled climate models – Part 1: Formulation and simulation characteristics. *Journal of Climate*, Vol 19, 643-674.

7. Gnanadesikan, A., et al., 2006: GFDL's CM2 global coupled climate models – Part 2: The baseline ocean simulation. *Journal of Climate*, Vol 19, 675-697..

8. Stouffer,R.J., A.J. Broccoli, T.L. Delworth, et al., 2006: GFDL's CM2 global coupled climate models – Part 4: Idealized climate change. *Journal of Climate*, 723-740.

9. Delworth, T.L., V. Ramaswamy, and G. L. Stenchikov, The impact of aerosols on simulated ocean temperature and heat content in the 20th century. *Geophysical Research Letters*, 32,L24709,doi:10.1029/2005GL024457.

10. Held, I.M., T.L. Delworth, J. Lu, K.L. Findell, T.R. Knutson, Simulation of Sahel drought in the 20th and 21st centuries. *Proceedings of the National Academy of Science, 102(50),17891-17896.*.

11. Findell, K. L., and T. L. Delworth, 2005: A modeling study of dynamic and thermodynamic mechanisms for summer drying in response to global warming. Geophysical Research Letters, 32, L16702, doi: 10.1029/2005GL023414.

12. Zhang, R., and T.L. Delworth, 2005: Simulated tropical response to a substantial weakening of the Atlantic thermohaline circulation. *Journal of Climate*, **18**, 1853-1860.

13. Anderson, J.L., V. Balaji, A.J. Broccoli, W.F. Cooke, T.L., Delworth, et al (30 additional coauthors), 2004: The new GFDL global atmosphere and land model AM2/LM2: Evaluation with prescribed SST simulation. *Journal of Climate,* **17**, 4641-4673.

14. Manabe, S., R. T. Wetherald, P. C. D. Milly, T. L. Delworth, and R. J. Stouffer, 2004: Century-scale change in water availability: CO_2-quadrupling experiment. *Climatic Change*, **64**(1-2), 59-76.

15. Broccoli, A. J., K.W. Dixon, T. D. Delworth, T. R. Knutson, R. J. Stouffer, and F. Zeng, 2003: Twentieth-century temperature and precipitation trends in ensemble climate simulations including natural and anthropogenic forcing. *Journal of Geophysical Research*, **108(D24),** 4798, doi:10.1029/2003JD003812.

16. Rutherford, S., M. E. Mann, T. L. Delworth, and R. J. Stouffer, 2003: Climate field reconstruction under stationary and nonstationary forcing. *Journal of Climate,* **16(3),** 462-479.

17. Visbeck, M. Chassignet, E.P., Curry, R.G., Delworth, T.L., Dickson, R.R., and Krahmann, G., 2003: The Ocean's response to the North Atlantic Oscillation. Chapter 6 of The North Atlantic Oscillation: Climatic Significance and Environmental Impact. Geophysical Monograph 134, AGU.

18. Dixon, K.W., T.L. Delworth, T.R. Knutson, M.J. Spelman, and R.J. Stouffer, 2003: A comparison of climate change simulations produced by GFDL numerical models having different spatial resolutions. *Global and Planetary Change,* **37(1-2),**81-102.

19. Delworth, T.L., R.J.Stouffer, K.W. Dixon, M.J. Spelman, T.R. Knutson, A.J. Broccoli, P.J. Kushner, and R.T. Wetherald, 2002: Review of simulations of climate variability and change by the GFDL R30 coupled climate model. *Climate Dynamics,* **19,** 555-574.

20. Milly, P.C., R.T. Wetherald, T.L. Delworth, and K.A. Dunne, 2001: Increasing risk of great floods in a changing climate. *Nature,* **415(6871),** 514-517.

21. Levitus, S., J. I. Antonov, J. Wang, T. L. Delworth, K. W. Dixon, and A. J. Broccoli, 2001. Anthropogenic warming of Earth's climate system. *Science*, **292(5515),** 267-270.

22. Kushner, P. J., I. M. Held, and T. L. Delworth, 2001: Southern Hemisphere atmospheric circulation response to global warming. *Journal of Climate*, **14(10),** 2238-2249.

23. Broccoli, A. J., T. L. Delworth, and N-C Lau: 2001. The effect of changes in observational coverage on the association between surface temperature and the Arctic Oscillation. *Journal of Climate*, **14(11),** 2481-2485.

24. Delworth, T.L., and K.W. Dixon, 2000: Implications of the recent trend in the Arctic/North Atlantic Oscillation for the North Atlantic thermohaline circulation. *J. Climate,* **13**, 3721-3727.

25. Manabe, S., T. R. Knutson, R. J. Stouffer, and T. L. Delworth, 2001: Exploring natural and anthropogenic variation of climate. *Quarterly Journal of the Royal Meteorological Society*, **127(571),** 1-24.

26. Allen, M.R., P.A. Stott, J.F.B. Mitchell, R. Schnur, and T.L. Delworth, 2000: Uncertainty in forecasts of anthropogenic climate change. *Nature,* **407**, 617-620.

27. Delworth, T.L., and M.E. Mann, 2000: Observed and simulated multidecadal variability in the North Atlantic. *Climate Dynamics*, **16**, 661-676.

28. Delworth, T.L., and T.R. Knutson, 2000: Simulation of early 20th century global warming. *Science*, **287**, p. 2246-2250.

29. Delworth, T.L., and R.J. Greatbatch, 2000: Multidecadal thermohaline circulation variability driven by atmospheric surface flux forcing. *J. Climate*, **13,** 1481-1495.

30. Mehta, V.M., M.J. Suarez, J.Y. Manganello, and T.L. Delworth, 2000: Oceanic influence on the North Atlantic Oscillation and associated Northern Hemisphere climate variations: 1959-1993. *Geophys. Res. Lett*., **27**, 121-124.

31. Knutson, T.R., T.L. Delworth, K.W. Dixon and R.J. Stouffer, 1999: Model assessment of regional surface temperature trends (1949-1997). *J. Geophys. Res.* **104(D24)**, 30,981-30,996.

32. Delworth, T.L., J.D. Mahlman, and T.R. Knutson, 1999: Changes in heat index associated with CO_2-induced global warming. *Climatic Change*, **43**, 369-386.

33. Dixon, K.W., T.L. Delworth, M.J. Spelman, and R.J. Stouffer, 1999: The influence of transient surface fluxes on North Atlantic overturning in a coupled GCM climate change experiment. *Geophys. Res. Lett*., **26**, 2749-2752.

SELECTED PRESENTATIONS

12/2005	**AGU Fall Meeting**	**San Francisco, CA**
Invited	**"**Simulated global-scale response to a substantial weakening of the North Atlantic thermohaline circulation"	
5/2005	**AGU Spring Meeting**	**New Orleans, LA**
Invited	**"**Simulation of 20th century climate change in the GFDL Coupled Models"	
2/2005	**AGU Chapman Conference**	**Honolulu, Hawaii**
Invited	"The role of the thermohaline circulation in tropical-extratropical teleconnections"	
1/2005	**American Meteorological Society Annual Meeting**	**San Diego, CA**
Invited	"CO_2-induced changes in extratropical continental hydrology in the new GFDL climate model"	
12/2004	**AGU Fall Meeting**	**San Francisco, CA**
Invited	"CO_2-induced changes in extratropical continental hydrology"	
11/2003	**CLIVAR/PAGES/IPCC Workshop "A multi-millennial perspective**	
Invited	**on drought and implications for the future"**	**Tucson, AZ**
	"Continental summer dryness in the new GFDL climate model"	
3/2003	**Duke University**	**Durham, NC**
Invited	**"**The Atlantic thermohaline circulation and climate"	
2/2003	**American Meteorological Society Annual Meeting**	**Long Beach, CA**
Invited	"The Atlantic thermohaline circulation and climate"	

5/2002 **Canadian Meteorological and Oceanographic Society** **Rimouski, Canada**
Invited **Annual Meeting**
"The potential role of thermohaline circulation fluctuations in 20th century North Atlantic climate"

5/2002 **American Geophysical Union Spring Meeting** **Washington, D.C.**
Invited "The potential role of thermohaline circulation fluctuations in 20th century North Atlantic climate"

8/2001 **Utrecht University, Climate Conference 2001** **The Netherlands**
Invited "Observed and simulated decadal to centennial climate variability"

3/2001 **Wadati Conference on Global Change and Polar Climate** **Tsukuba, Japan**
Invited "North Atlantic multidecadal variability and simulated 20th century climate change"

12/2000 **American Geophysical Union - Fall Meeting** **San Francisco, CA**
Invited "Implications of the recent trend in the Arctic/North Atlantic Oscillation for the North Atlantic thermohaline circulation"

5/2000 **Brookhaven National Laboratory** **Upton, NY**
Invited "Simulation of climate change in the 20th century"

AFFILIATIONS

American Meteorological Society
American Geophysical Union